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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

To: Office of the Secretary
Federal Communications Commission
Commissioner Ervin S. Duggan
Washington, DC 20554

From: Alcatel SEL, Germany
Product Management Department for Mobile Communication
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FCC MAIL BRANCH

Comment on the ET Docket No 93 - 62

Guidelines for evaluating the environmental effects of radio frequency radiation

ANSI/IEEE C95.1 - 1992 (IEE C95 1-1991)

Dear Mr. Duggan,

Please find attached Alcatel SEL's comment on the FCC proposal for the radio frequency radiation guideline. We kindly ask you to take a favourable view on our statements and consider our argumentation in the final Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation.

Best regards

W. Arps

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Having studied the above mentioned document and in knowledge of the German (draft) counterpart guideline DIN/VDE 0848 part 2, that is expected to serve as a proposal for the European standardization association CEN/CENELEC, and being aware of the most recent findings on the topic, we would like to

1. comment on the exclusions of the guideline, in particular on the Low Power Devices.

Generally, we believe the below modifications and specifications, respectively, to be justified

- in order to improve the consistency of standards between Europe and the USA especially with respect to the delicacy of the radiation topic.

- in order to create similar market conditions with respect to radiation aspects for telecommunication goods in Europe and the US. This is especially important, when taking into account the increasingly international interlocking of markets.

- to provide a secure and reliable legal position by sufficiently specified guidelines, thus ensuring for reasonable longterm planning on the supplier as well as on the operator side.

1. On the exclusion of the guideline - Low Power Devices

We would like to comment on the topic of low power devices in both controlled and uncontrolled

environment with respect to

- the notion of the "radiated power"
- the frequency range 450MHz - 1500MHz
- devices with "the radiating structure maintained within 2.5cm of the body".

"Radiated power"

In order to provide sufficiently specified guidelines, we suggest to define the **radiated power** of low power devices as **the root mean square of the radiated power averaged within the time interval of 6 minutes.**

In our view this is the reasonable approach,

- since the electromagnetic equivalent to the thermal effect of the radiated power is the RMS value and other effects caused by peak power are not to be expected with low power devices. Moreover, the thermal effect should be aimed at with priority by guidelines as it is the only effect, against which can be proved, that it has an hazardous impact on the human body when certain limits are exceeded.

- because even the most recent findings cannot reliably prove any difference with respect to a negative effect on the human body between pulsed and non-pulsed power densities. Therefore mobile radio systems applying pulsed or non-pulsed radio transmission should be judged on the same basis, that is on the **rms-value of the radiated power.**

Extension of the frequency range (450MHz - 1500MHz) for Low Power Devices

We suggest to **extend** the frequency range (450MHz - 1500MHz), for which the Low Power Device exclusion applies, up to **2000MHz**. We further stress, that the root mean square of the radiated power should be the adequate measure to check whether the limit of 1.4 x (450/f) watts is kept.

We believe that this frequency range extension is justified,

- since the physical behaviour of typical, biological tissue in terms of permittivity, conductivity and Specific Absorption Rate over frequency does not show any unsteadiness nor exceptional qualities within a very broad range, especially not in the interval 450 - 2000MHz. Since therefore no significant change of the impact on the human body of the effective radiated power in the range 450MHz -1500MHz versus 450MHz - 2000MHz is to be expected, the limit of 1500MHz is purely arbitrary and should be changed into 2000MHz.

- in order not to create trade restrictions on the American market for hand held devices of systems operating in the 1800MHz band. Mobile communication systems operating in the 1.8GHz band should be jugded on the same legal basis as systems transmitting in the 800/900 MHz range.

- in order to improve the consistency of standards between Europe and the USA, since no such restriction is known within the European standards.

"Radiating structure maintained within 2.5cm of the body"

We suggest to **withdraw the exclusion of those devices from the low power devices with which the radiating structure is maintained within 2.5cm of the body.** We believe, that this is justified,

- in order to improve the consistency of standards between Europe and the USA, in particular with respect to the delicacy of the radiation topic, since there is no such general exclusion solely depending on the distance from the body within the European standards.

- because we do not think that the adequate criterium of excluding some device from the "Low Power Device guideline" is solely the distance without taking into account the device's radiated power.

- because in Germany extensive studies taking into account the root mean square of the radiated power, the radiating structure and the SAR values, have shown that for digital systems with a radiating power of below 4 - 2 Watts , a limit depending on the operating frequency, no minimum distance between radiating device and the body are required at all.

- since due to the continuous nature of the electromagnetic fields the limit of 2.5cm appears rather arbitrary, does not match physical behaviour of electromagnetic fields and further only renders the Low Power Device exclusion complicated without being based on a physical necessity. E.g, it does not correspond to the physical reality and thus to the real endangering, if the same device is considered as uncritical if it is maintained at 2.6cm from the body, but is considered as dangerous if it is kept at 2.4cm from the body.